

Claims

1. A conjugate having the general formula

5 P-(L-NAT)_n

wherein

P represents an N-hydroxypropylmethacrylamide-methacrylate copolymer having a
10 molecular weight of 5-6,000 kDa;

NAT represents a nuclide activation therapy agent;

L represents a linker moiety capable of linking the polymer to the neutron capture therapy
agent; and

n represents an integer from 1-1,000.

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2. A conjugate as claimed in claim 1, wherein the polymer is a 2-hydroxypropylmethacrylamide-methacrylate copolymer.

3. A conjugate as claimed in any preceding claim, wherein the polymer has a molecular
20 weight of 5-100, preferably 10-70, more preferably 15-45, most preferably 20-40 kDa.

4. A conjugate as claimed in any preceding claim, wherein the ratio of hydroxypropylmethacrylamide to methacrylate is from 20:1 to 1:1.

25 5. A conjugate as claimed in any preceding claim, wherein the nuclide activation therapy agent is a neutron capture therapy agent.

6. A conjugate as claimed in claim 5, wherein the neutron capture therapy agent contains at least one nuclide selected from ⁶Li, ¹⁰B, ²²Na, ⁵⁸Co, ¹¹³Cd, ¹²⁶I, ¹³⁵Xe, ^{148m}Pm,
30 ¹⁴⁹Sm, ¹⁵¹Eu, ¹⁵⁵Gd, ¹⁵⁷Gd, ¹⁶⁴Dy, ¹⁸⁴Os, ¹⁹⁹Hg, ²³⁰Pa, ²³⁵U and ²⁴¹Pu in sufficient quantity to undergo a neutron capture reaction.

7. A conjugate as claimed in claim 6, wherein the nuclide is ^{10}B .
8. A conjugate as claimed in any of claims 5 to 7, wherein NAT represents a boronated
5 amino acid or peptide, a modified carborane cage, a mercaptoborate, a boron-containing porphyrin or phthalocyanine, a boron-containing nucleic acid precursor, or a boron-containing foliate growth factor, hormone, radiation sensitiser, phosphates, phosphonate, phosphoramidates, cyclic thiourea derivative, amine, promazine, hydantoin or barbiturate.
- 10 9. A conjugate as claimed in any preceding claim, wherein the NAT agent makes up 1-30%, preferably 5-10%, of the overall mass of the conjugate.
10. A conjugate as claimed in any preceding claim, wherein the linker represents a linear or branched C_{1-15} alkyl which may be saturated or unsaturated, optionally
15 substituted by carbonyl, amide, hydroxyl or halogen; a peptide, preferably 1-10 amino acids in length, in which the amino acids may be further substituted with amino, thio, carboxyl, carboxamide or imidazole groups; or a covalent bond.
11. A conjugate as claimed in any preceding claim, wherein n represents an integer from
20 1-500, preferably 1-100, particularly preferably 1-20.
12. A conjugate as claimed in any preceding claim, further comprising a chemotherapeutic agent attached to the polymer via the linker moiety L.
- 25 13. Poly(HPMA-co-MA-GG-BSMel).
14. Poly(HPMA-co-MA-GFLG-BSMel).
15. Poly(HPMA-co-MA-Gly-Phe-Leu-Gly-BSMel) Gly-Phe-Leu-Gly-Paclitaxel.
- 30 16. Poly(HPMA-co-MA-Gly-Phe-Leu-Gly-BSMel) Gly-Phe-Leu-Gly-Doxorubicin.

17. A pharmaceutical composition containing the conjugate as claimed in any preceding claim.
- 5 18. Use of the conjugate as claimed in any of claims 1-16 for the preparation of a medicament for the treatment of cancer.